

Two new South African species of *Timberlakia* Mercet (Hymenoptera: Encyrtidae), parasitic in mealybugs on citrus

by

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Two new species of *Timberlakia* Mercet are described from the Transvaal, South Africa: *T. signata* and *T. gilva*, both of which were reared from various species of mealybug on citrus.

The genus *Timberlakia* has hitherto been known from two Palaearctic species: the type-species, *T. europaea* (Mercet), which also occurs in the New World after having been introduced into North America, and *T. nocturna* Hoffer, known only from the male. The two new South African species described below have been assigned to *Timberlakia* on the basis of the published literature and on an examination of material of the type-species from France, received some years ago from the U.S. National Museum in Washington. The new species, namely *T. signata* and *T. gilva*, have been known for many years as primary parasitoids of certain mealybugs in citrus orchards in the western and eastern Transvaal, and names for these species have long been overdue.

Timberlakia Mercet is very closely related to *Acerophagus* Smith and *Pseudaphycus* Clausen, and these three genera (also other genera of the subtribe *Aphycina* Hoffer) have been separated in the past mainly on a rather superficial combination of characters that include the number of antennal club segments, the number of segments in the maxillary and labial palpi, the colour of the club, and minor differences in certain dimensions of the head. The value of these characters in separating genera which are structurally and biologically otherwise indistinguishable for all practical purposes is very much doubted. *Acerophagus* already includes a species which differs from its congeners in the number of segments of the maxillary palpi; and, as in the case of *Metaphycus* Mercet, it has been shown that the characters of the palpi are not always of significance in separating certain encyrtid genera. Also, in the two new species which I have assigned to *Timberlakia*, the maxillary palpi have three segments, not two as in the type-species. The same argument applies to the number of antennal segments in certain encyrtid genera, and in *T. nocturna* the male antenna is said to have the club two-segmented (Hoffer 1954), not unsegmented as in the other species now included in *Timberlakia*. I also have material in my collection representing a further new species of this genus in which the club of the female is not segmented. In view of the above, *Timberlakia*, *Pseudaphycus* and some other genera of the *Aphycina* could probably be placed in synonymy with *Acerophagus*. But I have refrained from doing this pending a thorough

examination of all the species and genera hitherto assigned to the Aphycina from all the zoogeographical regions. New synonymies and interpretations of generic limitations based on parts of faunas and on insufficient evidence have in the past – especially in the case of the Tetracneminae – led to much confusion and have done little to elucidate our understanding of the supraspecific classification of the Encyrtidae.

The two South African species are separated from the type-species by a number of characters, of which the narrower frontovertex and larger eyes, the difference in the number of segments of the maxillary palpi, and a shorter ovipositor, are perhaps the most obvious. The males of the new species are distinguished from *T. nocturna* (known only from the male) by the antennal club, which is undivided. Some of the information used in the descriptions of *T. signata* and *T. gilva* is from notes compiled by my late colleague Dr D. P. Annecke, who first recognized these two species.

Holotypes and paratypes of the new species are in the National Collection of Insects, Plant Protection Research Institute, Pretoria; 2 ♀ and 2 ♂ paratypes of each species will be deposited in the British Museum (Natural History), London.

***Timberlakia signata* spec. nov., Figs 1–6**

This new species is most readily separated from *T. gilva* by the dark markings on the body as described below.

FEMALE. Length: 0,6–0,8 mm. Colour: head and dorsum of body pale yellow, with the following parts marked with dark brown: anterior surface of pronotum; anterior margin of mesoscutum; mesonotal sutures; scutellum in a broad entire or medially interrupted transverse band caudad to the middle; dorsal and dorsolateral parts of the propodeum; dorsum of gaster in about six narrow transverse bands marking the hind margins of the terga; antenna whitish to pale yellow, the scape, pedicel and funicle suffused with brown; underside of body, and legs, whitish to pale yellow; fore wing very slightly infuscated at base, with a slightly darker patch on the disc just below the marginal and stigmal veins, and in some specimens with a small infuscated area beneath the distal part of the submarginal vein; hind wing hyaline; protruding part of ovipositor brown.

Head, viewed dorsally, with anterior margin gently rounded; head about twice as wide as long medially, 2,5–2,8 times the width of frontovertex measured at median ocellus; ocelli in a slightly acute-angled triangle, the lateral pair less than their own diameter from the eye margins; frontovertex approximately parallel-sided, the fronto-occipital margin acute; head, in frontal view (Fig. 3), not much wider than long, the eyes bulging slightly, their longest diameter longer than the malar space; scrobes well defined and fairly deep, meeting dorsally; antennal sockets separated from each other by about 1,5–1,7 times their greatest diameter at their smallest interval, placed well below the eyes, their lower limits close to the clypeal margin. Antenna (Fig. 2) with scape slender, the pedicel large, about as long as the basal four funicle segments together; funicle segments I–III subequal, transverse, IV–V each larger, V almost twice as wide as the basal segment; club two-segmented, larger than the entire funicle, the basal segment shorter than the distal one. Maxillary palpi each three-segmented, the labial palpi not segmented; mandible with three teeth, the upper and lower teeth retracted. Sculpture of head cellulate-reticulate, the cells on the frontovertex with small markings, appearing like fine aciculations; head with numerous fine setae, appearing silvery-white in dried specimens; eyes densely pubescent, the setae fine and short.

Thorax only slightly vaulted, appearing rather flat in profile in most specimens; pronotum short and transverse in dorsal aspect; mesoscutum plainly wider than long, without any traces of parapsidal sulci; scutellum slightly wider than long, tapering to a pointed apex; axillae not raised, separated mesally by a narrow sulcus; mesonotal sculpture reticulate, the cells mostly wider than long, rather irregular in size and shape, each cell with fine aciculations; setation of mesonotum as in Fig. 6, the setae on the mesoscutum slightly longer than those on the scutellum; mesonotal setae appressed, appearing silvery-white in dried specimens. Middle leg with basal tarsal segment longer than tibial spur (1:1.2-1.5).

Fore wing (Fig. 1) with submarginal vein slender, becoming thicker distally; marginal vein very short, almost punctiform; postmarginal vein short, not quite half as long as the stigmal; basal half of wing disc evenly and fairly densely setose from near base to speculum, the latter separated from the venation by one or two setae and from the caudal wing margin by two to four rows of setae; wing disc beyond speculum densely setose to apex, the setae hardly shorter and finer than those on the basal triangle; marginal fringe well developed; fore wing about 2.5 times as wide as long.

Abdomen (Fig. 6) longer than thorax in slide-mounted specimens; cercal plates placed approximately halfway between the base and apex of the gaster; no traces of paratergites in cleared slide-mounts; ovipositor, as seen through the derm, ranging from 1.2 to 1.5 times the length of middle tibia (Fig. 4); ovipositor 2.6-3.0 times as long as the gonostyli, the latter slender; protruding strongly at apex of gaster; distal sternite large, triangular in shape; protruding at gastral apex.

MALE. Similar to the female in colour and structure, differing chiefly from the latter in that the antennal club is not segmented (Fig. 5).

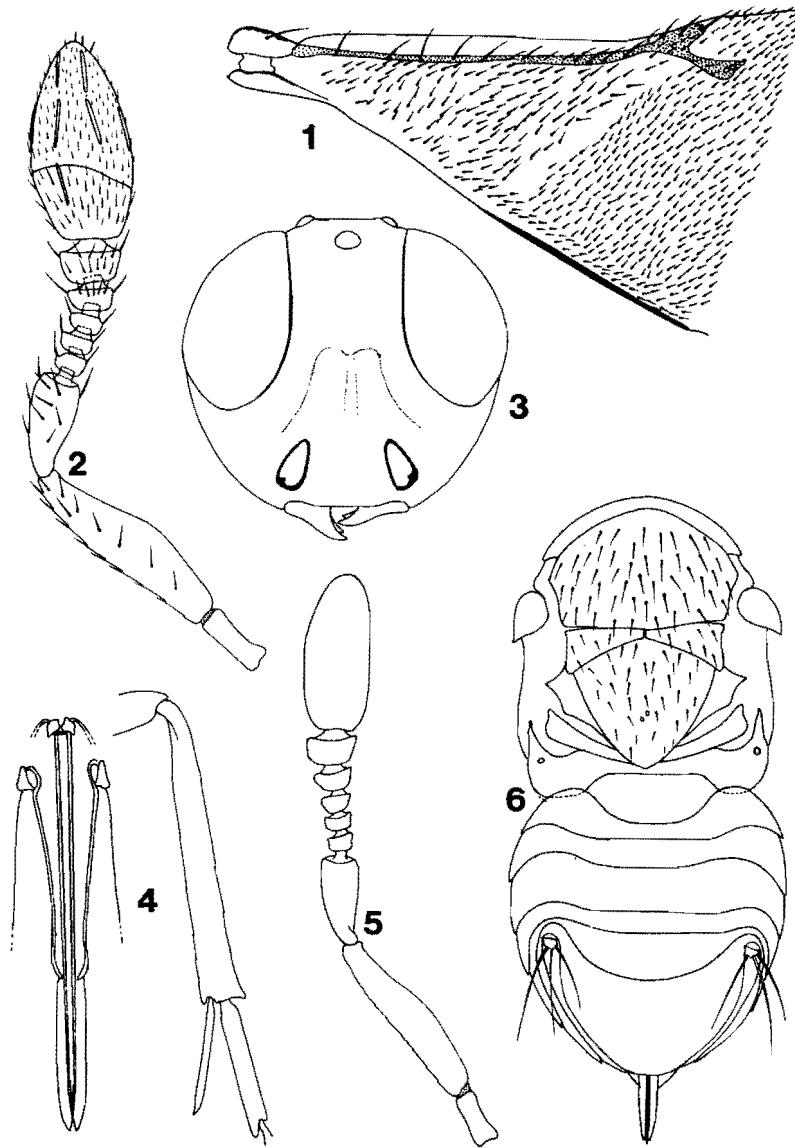
MATERIAL EXAMINED. ♀ Holotype, 22 ♀ 15 ♂ paratypes with the following data: SOUTH AFRICA: Rustenburg, Tvl., xii.1966, E. C. G. Bedford, ex *Nipaecoccus vastator* (Maskell) on citrus, ♀ holotype, 12 ♀ 2 ♂ (T 2383); same data except: i.1967, A. Redelinghuys, 5 ♀ 2 ♂ (T 2384); Zebediela, Tvl., i-iv.1966, H. Baas, ex *Paracoccus burnerae* (Brain) and *N. vastator* on citrus, 3 ♀ 2 ♂ (T 2341); Letsitele, Tvl., i.1978, S. S. Kamburov, ex *N. vastator* on citrus, 2 ♀ 9 ♂ (T 5509).

The following series were not included in the type-material: SOUTH AFRICA: Letaba Citrus Estates, Letaba, Tvl., ii.1978, A. J. Urban, ex *N. vastator* on citrus, 39 ♀ 9 ♂ (T 5510); Rustenburg, Tvl., xii.1971, C. J. Cilliers, ex mealybugs on citrus, 21 ♀ 5 ♂ (T 4171); Pienaarspoort (Pretoria district), Tvl., xi.1963, C. J. Cilliers, with *Waxiella mimosae* (Signoret) on *Acacia karroo*, 2 ♀ 1 ♂ (T 1580); Pietersburg, Tvl., iv.1966, G. J. Snowball, with *Gascardia destructor* (Newstead) on *Maytenus senegalensis*, 7 ♀ 5 ♂ (T 2294).

Timberlakia gilva spec. nov.

This species is very similar in size and structure to the foregoing one and differs mainly from the latter in colour and in having a broader frontovertex. *T. gilva* is here described with reference to *T. signata*.

FEMALE. Colour: head, dorsum of thorax, and abdomen, uniformly yellow or orange-yellow, the head in some specimens a little paler than the thorax, the gaster



Figs 1-6. *Timberlakia signata* spec. nov., paratypes. 1. Basal part of fore wing, ♀ (T 2383-1). 2. Antenna, ♀ (T 2383-1). 3. Head, frontal view, ♀ (T 2383-1). 4. Ovipositor and middle tibia, drawn to the same scale, ♀ (T 2383-1). 5. Antenna, ♂ (T 5509-1). 6. Thorax and abdomen with mesonotal setation, ♀ (T 2383-1).

usually with two or more narrow transverse bands marking the hind margin of the tergites; sides and venter of thorax, and legs, yellowish-white; antenna as in *signata*; wings as in the latter species but the infuscations absent or very pale.

Head much as in *signata* except that it is about 2.0-2.4 times as wide as the frontovertex; ocelli in a more or less right-angled triangle. Structure of head, body and appendages otherwise insignificantly different from that of *T. signata* except for the thoracic sculpture, which appears to be less coarse.

MALE. Similar to the female except in primary sex characters and for the antennal club, which is not segmented; in some specimens the scutellum has a faint, interrupted transverse brownish band caudad to the middle, much the same as, but paler than, that found in *T. signata*.

MATERIAL EXAMINED. ♀ Holotype, 55 ♀ 34 ♂ paratypes with the following data: SOUTH AFRICA: Pretoria, Tvl., i.1966, H. K. Munro, ex *Paracoccus burnerae* (Brian) on *Nerium oleander*, 1 ♀ holotype, 13 ♀ 7 ♂ (T 2115); Zebediela, Tvl., ii-vii.1966 and x-xi.1967, H. Baas, ex *Paracoccus burnerae* and *Nipaecoccus vastator* (Maskell) on citrus, 40 ♀ 23 ♂ (T 2334, T 2467 and T 2477); Letaba Citrus Estates, Letaba, Tvl., xii.1977, A. J. Urban, ex *Planococcus citri* (Rossi) on citrus, 2 ♀ 4 ♂ (T 5511).

The following series were not included in the type-material: SOUTH AFRICA: Pienaarspoort (Pretoria District), Tvl., xi.1963, C. J. Cilliers, with *Waxiella mimosae* (Signoret) on *Acacia karroo*, 1 ♀ 1 ♂ (T 2653); Pietersburg, Tvl., iv.1966, D. P. Annecke, with *Gascardia destructor* (Newstead) on *Maytenus senegalensis*, 5 ♀ 1 ♂ (T 2212).

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REFERENCE

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